

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

| | |
|--|---|
| Date of mailing: <p style="text-align: center;">14 September 2000 (14.09.00)</p> | |
| International application No.: <p style="text-align: center;">PCT/EP00/01348</p> | Applicant's or agent's file reference: <p style="text-align: center;">402539WO</p> |
| International filing date: <p style="text-align: center;">18 February 2000 (18.02.00)</p> | Priority date: <p style="text-align: center;">10 March 1999 (10.03.99)</p> |
| Applicant: <p style="text-align: center;">BLOM, Marcus, Anthonius</p> | |

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International preliminary Examining Authority on:

30 June 2000 (30.06.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

| | |
|--|--|
| <p style="text-align: center;">The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p> | Authorized officer: <p style="text-align: center;">J. Zahra</p> <p>Telephone No.: (41-22) 338.83.38</p> |
|--|--|

PATENT COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

KLEIN, Bart
KONINKLIJKE KPN N.V.
P.O. Box 95321
NL-2509 CH Den Haag
PAYS-BAS

PCT

WRITTEN OPINION

(PCT Rule 66)

12.03.01

| | |
|-------------------------------------|------------|
| Date of mailing (day/month/year) | 12.12.2000 |
|-------------------------------------|------------|

Applicant's or agent's file reference
402539WO

| | |
|------------------|--|
| REPLY DUE | within 3 month(s) from the above date of mailing |
|------------------|--|

International application No.
PCT/EP00/01348

International filing date (day/month/year)
18/02/2000

Priority date (day/month/year)
10/03/1999

International Patent Classification (IPC) or both national classification and IPC
H04L29/12

Applicant
KONINKLIJKE KPN N.V. et al.

1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain document cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application *encl. Annex D4*

3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: **10/07/2001**.

Name and mailing address of the international preliminary examining authority:

 European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer / Examiner

Körbler, G

Formalities officer (incl. extension of time limits)
Saavedra Martinez, V
Telephone No. +49 89 2399 8621 *8136*



WRITTEN OPINION

International application No. PCT/EP00/01348

I. Basis of the opinion

1. This opinion has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".*):

Description, pages:

1-3 as originally filed

Claims, No.:

1-3 as originally filed

Drawings, sheets:

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|--------|-----|
| Novelty (N) | Claims | |
| Inventive step (IS) | Claims | 1-3 |
| Industrial applicability (IA) | Claims | |

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Documents cited in the international search report:

- D1: HUI S -C ET AL: 'A dynamic IP addressing system for Internet telephony applications', COMPUTER COMMUNICATIONS,NL,ELSEVIER SCIENCE PUBLISHERS BV, AMSTERDAM, vol. 21, no. 3, page 254-266
XP004115293, ISSN: 0140-3664
- D2: LEIZAOLA M S: 'TUNING IP PERFORMANCE THE RIGHT TOOLS FOR THE TASK', DATA COMMUNICATIONS,US,MCGRAW HILL. NEW YORK, vol. 27, no. 7, page 129-130,132,134 XP000751339, ISSN: 0363-6399
- D3: CISCO SYSTEMS, INC: 'Cisco system's tag switching architecture overview' REQUEST FOR COMMENTS - RFC2105, [Online] 1997, pages 1-11, XP002124989

The following document was not cited in the international search report. A copy of the document is appended hereto.

- D4: KUMAR V.P., LAKSHMAN T.V.,STILIADIS D.: 'Beyond Best Effort: Router Architectures for the Differentiated Services of Tomorrow's Internet', May 1998, Bell Laboratories, Lucent Technologies, IEEE Communications

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The present vague and unclear formulation of the independent method claim 1 (**see Item VIII**) fails to meet the requirements of Art. 33(3) PCT, because the subject-matter does not involve an inventive step.

Claim 1 discloses a method for the transmission of IP packets via an IP access point and various IP routers originating from users with different service contracts. Upon login of an user, **user parameters which are a representation of facilities**, registered in the service contract of a user, are retrieved from a database.

Presumably this means that an Internet Service Provider (ISP) supports customer (user) specific differentiated services (**see Item VIII**).

Further an IP address, which has a specific bit pattern in a fixed location, is assigned to the user in accordance with the said user parameters.

Presumably this means that a reserved IP-address space (depending on the bit pattern) is assigned for each different application or service which need different QoS parameters (**see Item VIII**).

Furthermore the claim mentions that the IP packet will be subsequently processed according to said QoS parameters.

Document D4 is regarded as being the closest prior art to the subject-matter of claim 1.

D4 discloses (the references in parentheses applying to this document) (page 152, section "Differentiated Services") the technical feature of assigning different priorities or QoS parameters to different applications or services.

Indeed, the section "Service Provider Requirements" in D4 on page 153 describes tasks of an Internet Service Provider (ISP). An ISP should be able to identify traffic belonging to **different customers so that customer-specific differentiation can be done**.

Further the section "Packet Filtering and Classification" (in D4 on page 158-159) describes that the most important requirement for forwarding engines (routers) supporting different services is the ability to identify the context of packets and apply the actions necessary to satisfy service requirements (see last part of claim 1: "...and subsequently process the IP packet according to said QoS parameters.").

Moreover, document D4 discloses (page 159, left-hand column, line 8-17) that the key mechanism needed in a high-speed router to support differentiated services is a two-dimensional classification or lookup scheme that determines the next hop, and the associated resource allocations, **for each packet as a function of both the source and destination address**.

This is part of the wording of present claim 1. The subject-matter of claim 1 therefore differs from D4 in that a reserved IP-address space can be assigned to

users.

The objective problem would be to know the representation of facilities registered in the service contract upon login of the user and to differentiate these special facilities (services) comparing to other services.

It is implicit that an Internet Service Provider (ISP) has a database of customers (users) containing user data (login, password, home address, bank account, etc...). On each login an IP address is assigned to the user and this IP address can be assigned in accordance with the user data.

A skilled person in the art would find it self-evident, faced with the problem of getting special data (representation of facilities registered) of the user upon each login and to differentiate these special facilities (services) comparing to other services, to add this representation of facilities of a user to the user database and to assign a reserved IP-address space to users containing such facilities in the database.

Consequently, the features of present claim 1 would be found by the skilled person in a most self-evident manner; they are not based on an inventive step, and claim 1 therefore fails to meet the requirements of Art. 33 (3) PCT.

For the sake of completeness document D2 also discloses the technical feature of traffic prioritization of routers to service different traffic types based on IP source and destination address and application (D2, page 130, middle column, line 11-21).

2. Independent claim 2, although phrased as an apparatus claim (edge IP router or IP access device), is nonetheless a simple repetition of the subject-matter of method claim 1 and hence does not meet the requirements of the PCT for the same reasons.
3. Independent claim 3, although phrased as an apparatus claim (IP router), is nonetheless a simple repetition of the subject-matter of method claim 1 and hence does not meet the requirements of the PCT for the same reasons.

4. It is not at present apparent which part of the application could serve as a basis for a new, allowable claim which would satisfy the criteria set forth in Article 33(1) PCT.

Should the Applicant nevertheless regard some particular matter as patentable an independent claim including such particular matter should be filed, taking account of Rule 6.3(b) PCT. **The Applicant should also indicate in the letter of reply the difference vis à vis the state of the art and the inventive significance thereof.**

5. The attention of the Applicant is however drawn to the fact that the application may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed, Article 34(2) PCT.

Re Item VII

Certain defects in the international application

1. Although claims 1-3 are drafted in the two-part form, the features to assign each packet one or more QoS parameters based on said IP address and subsequently process the IP packet according to said QoS parameters are incorrectly placed in the characterising portion, as they are disclosed in document D4 in combination with the features placed in the preamble (Rule 6.3(b) PCT).
2. To meet the requirements of Rule 5.1 (a)(ii) PCT, document D2 and D4 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.
Also the prior art cited by the Applicant at the end of the description should be briefly discussed in the description.
3. Reference signs in parentheses should be inserted in the claims to increase their intelligibility, Rule 6.2(b) PCT. This applies to both the preamble and characterising portion.

4. In order to fulfil the requirements of Rule 5.1 (a)(iii) PCT, the description should be brought into conformity with the new claims.

Furthermore, following from the disclosure of document D4, the statement indicating the technical problem to be solved by the invention requires a revision which should be effected taking the requirements of Rule 5.1(a)(iii) PCT into account.

5. In order to facilitate the examination of amended application documents in view of Article 34(2)(b) PCT, the Applicant is requested to clearly indicate the amendments carried out, be it for amendments by addition, replacement or deletion and to indicate on which parts of the originally filed application documents these amendments are based (see also Rule 66.8 a) PCT).
This indication of the amendments could be done in handwriting on copies of the concerned parts of the originally filed application documents.
6. The Applicant is requested to file amendments by way of replacement pages. He should also take into account the requirements of Rule 66.8 PCT. In particular, fair copies of the amendments should be filed in triplicate.

Re Item VIII

Certain observations on the international application

1. The independent claims 1-3 do not meet the requirements of **Article 6 PCT** for the following reasons:
 - 1a. Claims 1 and 2 mention: "...upon login of an user, **user parameters** which are a **representation of facilities** registered in the service contract of the user are **retrieved from a database...**".
The user parameters are unclear (Art. 6 PCT). What is meant by user parameters ? Which parameters ?
What is meant by representation of facilities (user specific applications, services, etc...) ?

Who retrieves the user parameters ?

Presumably this means that an Internet Service Provider (ISP) supports customer (user) specific differentiated services.

- 1b. Further **claims 1 and 2** mention: "...in accordance with **user parameters which are a representation of facilities...**"
and **claims 1 and 3** mention: "...in which the IP routers assign to each packet **one or more Quality of Service parameters...**" .

The user parameters which are a representation of facilities and the one or more Quality of Service parameters are not clear (Art. 6 PCT).

Claim 2 (IP access device) only mentions the user parameters which are a representation of facilities and claim 3 (IP router) only mentions the one or more Quality of Service parameters, but claim 1 (method) mentions both types of parameters.

What is the difference between the user parameters which are a representation of facilities and the Quality of Service parameters ?

It is not clear which Quality of Service parameters are meant ?

- 1c. The claims 1-3 mention "**...in an IP address assigned to the user, in a fixed location, a specific bit pattern is written,...**" .

The fixed location in an IP-address, where the specific bit pattern can be written in a fixed location, is unclear (Art. 6 PCT).

Each IP address consists of a defined bit pattern. If one part ("location") of this bit pattern is fixed then these IP addresses with a fixed part represent a reserved IP-address space.

Presumably the Applicant means **a reserved IP-address space which can be assigned to a set of applications where the IP packets will be subsequently processed according to the QoS parameters.**

- 1d. Furthermore the formulation "**...in which the IP routers assign to each packet one or more Quality of Service parameters based on the said bit pattern in a fixed location of the IP address, and subsequently process the IP packet according to**

said Quality of Service parameters.." in **claim 1** is not clear (Art. 6 PCT).

It is totally unclear how the IP router assigns one or each Quality of Service parameters to each packet.

How is the processing of IP packets according to said Quality of Service parameters done ?

This essential technical feature is indeed missing in the independent claims (Article 6 PCT in combination with Rule 6.3(b) PCT).

Indeed the formulations " ...in which the IP routers assign to each IP packet one or more Quality of Service parameters based on the said bit pattern in a fixed location of the IP adress, and subsequently process the IP packet according to said Quality od Service parametres." used in **claims 1 and 2** and "...means for assigning to each IP packet one or more Quality of Service parameters..." used in **claims 1 and 3** seek to replace this essential feature by defining the alleged invention by referring features which concern the effect which is desired to be achieved and thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT). See also PCT Guidelines Chapter III-4.7.



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**Europäisches
Patentamt**

Generaldirektion 2

**European
Patent Office**

Directorate General 2

**Office européen
des brevets**

Direction Générale 2

Correspondence with the EPO on PCT Chapter II demands

In order to ensure that your PCT Chapter II demand is dealt with as promptly as possible you are requested to use the enclosed self-adhesive labels with any correspondence relating to the demand sent to the Munich Office.

One of these labels should be affixed to a prominent place in the upper part of the letter or form etc. which you are filing.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|--|---|--|
| Applicant's or agent's file reference 402539W0 | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/EP 00/ 01348 | International filing date (day/month/year) 18/02/2000 | (Earliest) Priority Date (day/month/year) 10/03/1999 |
| Applicant KONINKLIJKE KPN N.V. et al. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

2
☐ None of the figures.

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

KLEIN, Bart
KONINKLIJKE KPN N.V.
P.O. Box 95321
NL-2509 CH Den Haag
PAYS-BAS

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Rule 71.1)

| | |
|-------------------------------------|------------|
| Date of mailing (day/month/year) | 11.07.2001 |
|-------------------------------------|------------|

| | |
|---|-------------------------------|
| Applicant's or agent's file reference 402539WO | IMPORTANT NOTIFICATION |
|---|-------------------------------|

| | | |
|---|--|--|
| International application No. PCT/EP00/01348 | International filing date (day/month/year) 18/02/2000 | Priority date (day/month/year) 10/03/1999 |
|---|--|--|

| |
|--|
| Applicant KONINKLIJKE KPN N.V. et al. |
|--|

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

| | |
|---------------------------------------|--------------------|
| Name and mailing address of the IPEA/ | Authorized officer |
|---------------------------------------|--------------------|



European Patent Office
D-80298 Munich
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Fax: +49 89 2399 - 4465

Authorized officer

Barrio Baranano, A

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

| | | | |
|--|--|--|---|
| Applicant's or agent's file reference 402539WO | FOR FURTHER ACTION | | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |
| International application No. PCT/EP00/01348 | International filing date (<i>day/month/year</i>) 18/02/2000 | Priority date (<i>day/month/year</i>) 10/03/1999 | |
| International Patent Classification (IPC) or national classification and IPC H04L29/12 | | | |
| Applicant KONINKLIJKE KPN N.V. et al. | | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 11 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 11 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

| | |
|---|--|
| Date of submission of the demand 30/06/2000 | Date of completion of this report 11.07.2001 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized officer Körbler, G Telephone No. +49 89 2399 8250 |



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/01348

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-3 as originally filed

Claims, No.:

1-3 as originally filed

Drawings, sheets:

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP00/01348

☐ the drawings, sheets:

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

see separate sheet

6. Additional observations, if necessary:

see separate sheet

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------|------|--------|-----|
| Novelty (N) | Yes: | Claims | 1-3 |
| | No: | Claims | |

| | | | |
|---------------------|------|--------|-----|
| Inventive step (IS) | Yes: | Claims | |
| | No: | Claims | 1-3 |

| | | | |
|-------------------------------|------|--------|-----|
| Industrial applicability (IA) | Yes: | Claims | 1-3 |
| | No: | Claims | |

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/01348

Documents cited in the international search report:

- D1: HUI S -C ET AL: 'A dynamic IP addressing system for Internet telephony applications', COMPUTER COMMUNICATIONS,NL,ELSEVIER SCIENCE PUBLISHERS BV, AMSTERDAM, vol. 21, no. 3, page 254-266
XP004115293, ISSN: 0140-3664
- D2: LEIZAOLA M S: 'TUNING IP PERFORMANCE THE RIGHT TOOLS FOR THE TASK', DATA COMMUNICATIONS,US,MCGRAW HILL. NEW YORK, vol. 27, no. 7, page 129-130,132,134 XP000751339, ISSN: 0363-6399
- D3: CISCO SYSTEMS, INC: 'Cisco system's tag switching architecture overview' REQUEST FOR COMMENTS - RFC2105, [Online] 1997, pages 1-11, XP002124989

The following document was not cited in the international search report.

- D4: KUMAR V.P., LAKSHMAN T.V.,STILIADIS D.: 'Beyond Best Effort: Router Architectures for the Differentiated Services of Tomorrow's Internet', May 1998, Bell Laboratories, Lucent Technologies, IEEE Communications

Re Item I

Basis of the opinion

The amendments filed with the letter dated 12.3.2001 do not meet the requirements of Article 34(2)(b) PCT, as they go beyond the disclosure in the international application as filed. The amendments concerned are the following (see also the PCT-Guidelines, chapter VI-7.8 and 7.9):

- a.) Claims 1,2 and 3 specify: "...originating from users with different **Quality-of-Service** contracts...".

The description only discloses (page 1, line 6-7): "...originating from users with **different service contracts**...".

However, the formulation of the description contains each kind of common service contract. A user may get assigned an IP-address for a specific

application or service, which does not mean that a quality of service is related to the application or service.

Moreover, the description discloses (page 2, line 2-4) : "By means of a specific bit pattern in a fixed location in the IP address which is assigned for a user, it is subsequently designated which subscription the user has." Therefore it is known which subscription the user has, but this does not necessarily mean that **the subscription is related to a Quality-of-Service contract**.

- b.) Claims 1b and 3 mention: "...said IP routers **detect** at said reserved IP-address space said bit pattern...".

The description only discloses (page 2, line 5-7): "IP edge routers classify each IP packet after **inspection** of the bit pattern in said fixed location in the IP address...".

However, the formulation "detect" means something different than "inspect". The formulation "detect" means for example to discover or determine the existence, presence, or fact of something specific (for example Quality of Service bit pattern).

On the other hand the formulation "inspect" means to view closely in critical appraisal or to make an inspection of something in common.

Therefore, the change in the claims results in the skilled person being presented with information which is not directly and unambiguously derivable from that previously by the application.

- c.) Moreover, the Applicant has revised the description on page 1, line 1-11, page 2, line 3-24. In particular, a new problem was added (page 1, line 7) and new advantages over D4 (Quality-of-Service contracts instead of subscription related service agreements).

Hence, the description was amended in such a way that a new problem and new advantages have been added which were neither disclosed nor unambiguously derivable from the content as filed. In consequence, the content of the description has been extended beyond the content as filed

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/01348

(Article 34 (2)(b) PCT; cf. also PCT-Guidelines Section IV, VI-7.12b)

At present, no basis for such an extension expressed above can be found in the application as *filed* and hence the application is being amended in such a way that it contains subject-matter which extends beyond the content of the application as filed, contrary to Article 34 (2)(b) PCT and Rule 70.2 (c) PCT.

With respect to the objection raised above and according to the PCT-Guidelines (cf. Chapter VI-7.8, VI-7.9, VI-8.5), the international preliminary examination report must be established as if such amendment had not been made. The amended Claims 1-3 are therefore not taken into account.

The report is therefore based on *original* Claims 1-3 as filed with letter of 13.03.2000.

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The present vague and unclear formulation of the independent method claim 1 (**see Item VIII**) fails to meet the requirements of Art. 33(3) PCT, because the subject-matter does not involve an inventive step.

Claim 1 discloses a method for the transmission of IP packets via an IP access point and various IP routers originating from users with different service contracts. Upon login of an user, **user parameters which are a representation of facilities**, registered in the service contract of a user, are retrieved from a database.

Presumably this means that an Internet Service Provider (ISP) supports customer (user) specific differentiated services (**see Item VIII**).

Further an IP address, which has a specific bit pattern in a fixed location, is assigned to the user in accordance with the said user parameters.

Presumably this means that a reserved IP-address space (depending on the bit pattern) is assigned for each different application or service which need different QoS parameters (**see Item VIII**).

Furthermore the claim mentions that the IP packet will be subsequently processed according to said QoS parameters.

Document D4 is regarded as being the closest prior art to the subject-matter of claim 1.

D4 discloses (the references in parentheses applying to this document) (page 152, section "Differentiated Services") the technical feature of assigning different priorities or QoS parameters to different applications or services.

Indeed, the section "Service Provider Requirements" in D4 on page 153 describes tasks of an Internet Service Provider (ISP). An ISP should be able to identify traffic belonging to **different customers so that customer-specific differentiation can be done**.

Further the section "Packet Filtering and Classification" (in D4 on page 158-159) describes that the most important requirement for forwarding engines (routers) supporting different services is the ability to identify the context of packets and apply the actions necessary to satisfy service requirements (see last part of claim 1: "...and subsequently process the IP packet according to said QoS parameters.>").

Moreover, document D4 discloses (page 159, left-hand column, line 8-17) that the key mechanism needed in a high-speed router to support differentiated services is a two-dimensional classification or lookup scheme that determines the next hop, and the associated resource allocations, **for each packet as a function of both the source and destination address**.

This is part of the wording of present claim 1. The subject-matter of claim 1 therefore differs from D4 in that a reserved IP-address space can be assigned to users.

The objective problem would be to know the representation of facilities registered in the service contract upon login of the user and to differentiate these special facilities (services) comparing to other services.

It is implicit that an Internet Service Provider (ISP) has a database of customers (users) containing user data (login, password, home address, bank account, etc...). On each login an IP address is assigned to the user and this IP address can be assigned in accordance with the user data.

A skilled person in the art would find it self-evident, faced with the problem of getting special data (representation of facilities registered) of the user upon each login and to differentiate these special facilities (services) comparing to other services, to add this representation of facilities of a user to the user database and to assign a reserved IP-address space to users containing such facilities in the database.

Consequently, the features of present claim 1 would be found by the skilled person in a most self-evident manner; they are not based on an inventive step, and claim 1 therefore fails to meet the requirements of Art. 33 (3) PCT.

For the sake of completeness document D2 also discloses the technical feature of traffic prioritization of routers to service different traffic types based on IP source and destination address and application (D2, page 130, middle column, line 11-21).

2. Independent claim 2, although phrased as an apparatus claim (edge IP router or IP access device), is nonetheless a simple repetition of the subject-matter of method claim 1 and hence does not meet the requirements of the PCT for the same reasons.
3. Independent claim 3, although phrased as an apparatus claim (IP router), is nonetheless a simple repetition of the subject-matter of method claim 1 and hence does not meet the requirements of the PCT for the same reasons.

Re Item VII

Certain defects in the international application

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/01348

1. The independent claims are not in the two-part form required by Rule 6.3(b) PCT, with a preamble based on D4.
2. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
3. Contrary to the requirements of Rule 5.1 (a)(ii) PCT, the relevant background art disclosed in document D4 is not discussed in the description, nor is this document identified therein.

Re Item VIII

Certain observations on the international application

1. The independent claims 1-3 do not meet the requirements of **Article 6 PCT** for the following reasons:
 - 1a. Claims 1 and 2 mention: "...upon login of an user, **user parameters** which are a **representation of facilities** registered in the service contract of the user are **retrieved from a database...**".

The user parameters are unclear (Art. 6 PCT). What is meant by user parameters ? Which parameters ?

What is meant by representation of facilities (user specific applications, services, etc...) ?

Who retrieves the user parameters ?

Presumably this means that an Internet Service Provider (ISP) supports customer (user) specific differentiated services.
 - 1b. Further **claims 1 and 2** mention: "...in accordance with **user parameters** which are a **representation of facilities...**"
and **claims 1 and 3** mention: "...in which the IP routers assign to each packet **one or more Quality of Service parameters...**" .

The user parameters which are a representation of facilities and the one or more

Quality of Service parameters are not clear (Art. 6 PCT).

Claim 2 (IP access device) only mentions the user parameters which are a representation of facilities and claim 3 (IP router) only mentions the one or more Quality of Service parameters, but claim 1 (method) mentions both types of parameters.

What is the difference between the user parameters which are a representation of facilities and the Quality of Service parameters ?

It is not clear which Quality of Service parameters are meant ?

- 1c. The claims 1-3 mention **"...in an IP address assigned to the user, in a fixed location, a specific bit pattern is written,..."**.

The fixed location in an IP-address, where the specific bit pattern can be written in a fixed location, is unclear (Art. 6 PCT).

Each IP address consists of a defined bit pattern. If one part ("location") of this bit pattern is fixed then these IP addresses with a fixed part represent a reserved IP-address space.

Presumably the Applicant means **a reserved IP-address space which can be assigned to a set of applications where the IP packets will be subsequently processed according to the QoS parameters.**

- 1d. Furthermore the formulation **"...in which the IP routers assign to each packet one or more Quality of Service parameters based on the said bit pattern in a fixed location of the IP address, and subsequently process the IP packet according to said Quality of Service parameters.."** in **claim 1** is not clear (Art. 6 PCT).

It is totally unclear how the IP router assigns one or each Quality of Service parameters to each packet.

How is the processing of IP packets according to said Quality of Service parameters done ?

This essential technical feature is indeed missing in the independent claims (Article 6 PCT in combination with Rule 6.3(b) PCT).

Indeed the formulations " ...in which the IP routers assign to each IP packet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/01348

one or more Quality of Service parameters based on the said bit pattern in a fixed location of the IP adress, and subsequently process the IP packet according to said Quality od Service parametres." used in **claims 1 and 2** and **"...means for assigning to each IP packet one or more Quality of Service parameters..."** used in **claims 1 and 3** seek to replace this essential feature by defining the alleged invention by referring features which concern the effect which is desired to be achieved and thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT). See also PCT Guidelines Chapter III-4.7.

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

KLEIN, Bart
KONINKLIJKE KPN N.V.
P.O. Box 95321
NL-2509 CH Den Haag
PAYS-BAS

NOTIFICATION OF RECEIPT OF DEMAND BY COMPETENT INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

(PCT Rules 59.3(e) and 61.1(b), first sentence
and Administrative Instructions, Section 601(a))

Date of mailing
(day/month/year)

14. 07. 00

Applicant's or agent's file reference
402539W0

IMPORTANT NOTIFICATION

International application No.

PCT/EP 00/ 01348

International filing date (day/month/year)

18/02/2000

Priority date (day/month/year)

10/03/1999

Applicant

KONINKLIJKE KPN N.V. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

30/06/2000

2. This date of receipt is:

- ☒ the actual date of receipt of the demand by this Authority (Rule 61.1(b)).
- ☐ the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).
- ☐ the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **ATTENTION:** That date of receipt is **AFTER** the expiration of 19 months from the priority date. Consequently, the election(s) made in the demand does (do) not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22). For details, see the *PCT Applicant's Guide*, Volume II.

- ☐ (If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/

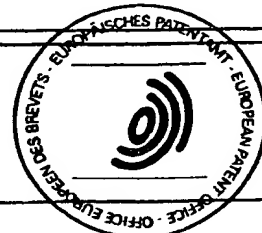


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Authorized officer

MOSER A R

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The demand must be filed directly with the competent International Preliminary Examining Authority or two or more Authorities are competent with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below.

IPEA/ EP

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

| | |
|--|--|
| For International Preliminary Examining Authority use only | |
| Identification of IPEA | Date of receipt of DEMAND |
| Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION | |
| Applicant's or agent's file reference 402539W0 | |
| International application No. PCT/EP00/01348 | International filing date (day/month/year) 18 FEB 2000 (18/02/2000) |
| (Earliest) Priority date (day/month/year) 10 MAR 1999 (10/03/99) | |
| Title of invention | |
| Encoding user subscription in IP address. | |
| Box No. II APPLICANT(S) | |
| Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) | |
| KONINKLIJKE KPN N.V. 7 Stationsplein 9726 AE GRONINGEN The Netherlands | |
| Telephone No.: +31 70 332 36 78 | |
| Facsimile No.: +31 70 332 38 40 | |
| Teleprinter No.: | |
| State (that is, country) of nationality: NL | State (that is, country) of residence: NL |
| Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) | |
| BLOM, Marcus Anthonius Van Leeuwenstraat 127 2273 VS VOORBURG The Netherlands | |
| State (that is, country) of nationality: NL | State (that is, country) of residence: NL |
| Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) | |
| | |
| State (that is, country) of nationality: | State (that is, country) of residence: |
| <input type="checkbox"/> Further applicants are indicated on a continuation sheet. | |

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCEThe following person is ☒ agent ☐ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

KLEIN, Bart
 KONINKLIJKE KPN N.V.
 P.O. BOX 95321
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 The Netherlands

Telephone No.:

+31 70 332 36 78

Facsimile No.:

+31 70 332 38 40

Teleprinter No.:

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments:***

1. The applicant wishes the international preliminary examination to start on the basis of:

☒ the international application as originally filed

the description

☒

as originally filed

☐

as amended under Article 34

the claims

☒

as originally filed

☐

as amended under Article 19 (together with any accompanying statement)

☐

as amended under Article 34

the drawings

☒

as originally filed

☐

as amended under Article 34

2. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English☒

which is the language in which the international application was filed.

☐

which is the language of a translation furnished for the purposes of international search.

☐

which is the language of publication of the international application.

☐

which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

Box No. V ELECTION OF STATESThe applicant hereby elects all eligible States *(that is, all States which have been designated and which are bound by Chapter II of the PCT)*

excluding the following States which the applicant wishes not to elect:

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- | | | |
|--|---|--------|
| 1. translation of international application | : | sheets |
| 2. amendments under Article 34 | : | sheets |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | sheets |
| 4. copy (or, where required, translation) of statement under Article 19 | : | sheets |
| 5. letter | : | sheets |
| 6. other (specify) | : | sheets |

For International Preliminary Examining Authority use only

received not received

| | |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> |

The demand is also accompanied by the item(s) marked below:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> fee calculation sheet | 4. <input type="checkbox"/> statement explaining lack of signature |
| 2. <input type="checkbox"/> separate signed power of attorney | 5. <input type="checkbox"/> nucleotide and or amino acid sequence listing in computer readable form |
| 3. <input checked="" type="checkbox"/> copy of general power of attorney; reference number, if any: | 6. <input type="checkbox"/> other (specify): |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).



Bart KLEIN

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply.

☐ The applicant has been informed accordingly.

4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.

5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

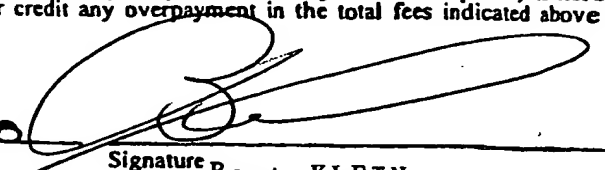
For International Bureau use only

Demand received from IPEA on:

PCT

FEE CALCULATION SHEET

Annex to the Demand for international preliminary examination

| | | |
|--|--|---|
| International application No. PCT/EP00/01348 | For International Preliminary Examining Authority use only | |
| Applicant's or agent's file reference 402539WO | Date stamp of the IPEA | |
| Applicant Koninklijke KPN N.V. | | |
| Calculation of prescribed fees | | |
| 1. Preliminary examination fee | EUR 1533 | P |
| 2. Handling fee <i>(Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.)</i> | EUR 147 | H |
| 3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box | EUR 1680 | |
| TOTAL | | |
| Mode of Payment | | |
| <input checked="" type="checkbox"/> authorization to charge deposit account with the IPEA (see below) | | |
| <input type="checkbox"/> cash | | |
| <input type="checkbox"/> cheque | | |
| <input type="checkbox"/> revenue stamps | | |
| <input type="checkbox"/> postal money order | | |
| <input type="checkbox"/> coupons | | |
| <input type="checkbox"/> bank draft | | |
| <input type="checkbox"/> other (specify): | | |
| Deposit Account Authorization <i>(this mode of payment may not be available at all IPEAs)</i> | | |
| The IPEA/ <u>EP</u> <input checked="" type="checkbox"/> is hereby authorized to charge the total fees indicated above to my deposit account. | | |
| <input checked="" type="checkbox"/> <i>(this check-box may be marked only if the conditions for deposit accounts of the IPEA so permit)</i> is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account. | | |
| 28090011 Deposit Account Number | June 26, 2000 Date (day/month/year) |  Signature <u>Bart KLEIN</u> |

2 Ich (Wir) / I (We) / Je (Nous)

Koninklijke KPN N.V.
Stationsplein 7
9726 AE GRONINGEN
The Netherlands

3 bevollmächtigte(n) hiermit / do hereby authorize / autorise (autorisons) par la présente

KLEIN, Bart (Professional Representative)

mailing address: Koninklijke KPN N.V.
Intellectual Property Group
P.O. Box 95321
2509 CH THE HAGUE
The Netherlands

4 mich (uns) in den durch das Europäische Patentübereinkommen geschaffenen Verfahren in allen meinen (unseren) Patentangelegenheiten zu vertreten, alle Handlungen für mich (uns) vorzunehmen und Zahlungen für mich (uns) in Empfang zu nehmen.
to represent me (us) in all proceedings established by the European Patent Convention and to act for me (us) in all patent transactions and to receive payments on my (our) behalf.

à me (nous) représenter pour ce qui concerne toutes mes (nos) affaires de brevet dans toute procédure instituée par la Convention sur le brevet européen et, à ce titre, à agir en mon (notre) nom et à recevoir des paiements pour mon (notre) compte.

☒ Die Vollmacht gilt auch für Verfahren nach dem Vertrag über die internationale Zusammenarbeit auf dem Gebiet des Patentwesens.
This authorisation shall also apply to the same extent to any proceedings established by the Patent Cooperation Treaty.
Ce pouvoir s'applique également à toute procédure instituée par le Traité de coopération en matière de brevets.

☐ Weitere Vertreter sind auf einem gesonderten Blatt angegeben. / Additional representatives indicated on supplementary sheet.
Les autres mandataires sont mentionnés sur une feuille supplémentaire.

5 ☒ Untervollmacht kann erteilt werden. / Sub-authorisation may be given. / Le pouvoir pourra être délégué.

6 ☒ Bitte die gelbe Kopie, ergänzt um die Nr. der allgemeinen Vollmacht, an den Vollmachtgeber zurücksenden.
Please return the yellow copy, supplemented by the General Authorisation No., to the authoriser.
Prière de renvoyer la copie jaune au mandant, munie du n° du pouvoir général.

Ort/Place/Ueu **The Hague**

Datum/Date **September 01, 1998**

Unterschrift(en) / Signature(s)


KLEIN, Bart (Professional Representative)

7 Das Formblatt muß vom (von der) Vollmachtgeber(n) (bei juristischen Personen vom Unterschriftsberechtigten) eigenhändig unterzeichnet sein. Nach der Unterschrift bitte (die) Namen des (der) Unterzeichneten mit Schreibmaschine wiederholen (bei juristischen Personen die Stellung des Unterschriftsberechtigten innerhalb der Gesellschaft angeben).

The form must bear the personal signature(s) of the authorisator(s) (in the case of legal persons, that of the officer empowered to sign). After the signature, please type the name of the signatory(ies) adding, in the case of legal persons, his (their) position within the company.

Le formulaire doit être signé de la propre main du (des) mandant(s) (dans le cas de personnes morales, de la personne ayant qualité pour signer). Veuillez ajouter à la machine après la signature, le (les) nom(s) du (des) signataire(s) en mentionnant, dans le cas de personnes morales, ses (leurs) fonctions au sein de la société.

PATENT COOPERATION TREATY

PCT

From the RECEIVING OFFICE

To:

KONINKLIJKE KPN N.V.
P.O. Box 95321
NL-2509 CH Den Haag
PAYS-BAS

NOTIFICATION OF THE INTERNATIONAL
APPLICATION NUMBER AND OF THE
INTERNATIONAL FILING DATE

(PCT Rule 20.5(c))

Date of mailing
(day/month/year)

13. 03. 2000

Applicant's or agent's file reference

402539WO

IMPORTANT NOTIFICATION

International application No.

PCT/EP 00/ 01348

International filing date (day/month/year)

18/02/2000

Priority date (day/month/year)

10/03/1999

Applicant

KONINKLIJKE KPN N.V.

Title of the invention

1. The applicant is hereby notified that the international application has been accorded the international application number and the international filing date indicated above.
2. The applicant is further notified that the record copy of the international application was transmitted to the International Bureau on the above date of mailing.
3. ☐ Other:



* The International Bureau monitors the transmittal of the record copy by the receiving Office and will notify the applicant (with Form PCT/IB/301) of its receipt. Should the record copy not have been received by the expiration of 14 months from the priority date, the International Bureau will notify the applicant (Rule 22.1(c)).

Name and mailing address of the receiving Office



European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+ 31-70) 340-3016

Authorized officer

E. Speiser ES

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

PCT/EP 00 / 01 348

International Application No.

18 FEB 2000

International Filing Date

(18. 02. 2000)

EUROPEAN PATENT OFFICE

PCT INTERNATIONAL APPLICATION

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference

(if desired) (12 characters maximum)

402539W0

Box No. I TITLE OF INVENTION

Encoding user subscription in IP address.

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

KONINKLIJKE KPN N.V.

Stationsplein 7

9726 AE GRONINGEN

The Netherlands

☐ This person is also inventor.

Telephone No.

+31 70 3323678

Facsimile No.

+31 70 3323840

Teleprinter No.

State (that is, country) of nationality:

NL

State (that is, country) of residence:

NL

This person is applicant for the purposes of:

☐ all designated States

☒ all designated States except the United States of America

☐ the United States of America only

☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

BLOM

Marcus Anthonius

Van Leeuwenstraat 127

2273 VS VOORBURG

The Netherlands

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box is marked, do not fill in below.)

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Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

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Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

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If the Supplemental Box is not used, this sheet should not be included in the request.

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- (i) If more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;
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 - (iv) if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;
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Continuation of Box No IX⁴4
RO/EPBLOM
Marcus Anthonius


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| | | national application: country | regional application: regional Office | international application: receiving Office |
| item (1) (10.03.99) 10 MAR 1999 | 1011524 | NL | | |
| item (2) | | | | |
| item (3) | | | | |

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| Figure of the drawings which should accompany the abstract: 2 | Language of filing of the international application: English ⁴ |

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KLEIN, Bart

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Title: Encoding user subscription in IP address.

A. Background of the invention

The invention is related to a method ~~for the~~
5 ~~transmission, via an IP access point and various IP~~
~~routers, of IP packets, originating from users with~~
~~different service contracts.~~ for the transmission, via an IP
access device and various IP routers, of IP packets,
10 originating from users with different Quality-of-Service
contracts, whereas, upon login of a user, said IP access
device assigns an IP address to said user and, moreover,
retrieves, from a Quality-of-Service database Quality-of-
Service parameters assigned to said user.

It is known in the prior art, for instance from
15 reference 1, that IP packets can be handled by IP routers
differentially on the basis of the so-called IP precedence
bits in the header of a packet, and that the IP precedence
bits can be set by an IP router at the edge of the network
("IP edge router") on the basis of various attributes of
20 the IP packet ("classification"). It is also known that, on
the basis of the precedence bits, the IP traffic of users
with different service subscriptions can be differentially
handled ("per hop behaviour"), i.e. according to the
subscription-related contract agreements. Said
25 classification and "per hop behaviour" are the building
blocks with which, in an IP network, future-determined
quality guarantees can be given which are required for
demanding applications, such as IP telephony, IP videophony
or gaming.

30 The prior art has the following disadvantages: (1)
classification requires much processor capacity of the IP
edge router, whereby, with the current technology, it is
deployable for far too few users simultaneously and
therefore unsuitable for large-scale use, and (2)
35 continuous adjustment of the configuration of all IP edge

routers in the network is necessary, viz. upon every login or logout of a user.

B. Summary of the invention

5 1. The invention seeks to obviate the said disadvantages. To this end the invention provides a method for the transmission, via an IP access device and various IP routers, of IP packets, originating from users with different Quality-of-Service

10 contracts, whereas, upon login of a user, said IP access device assigns an IP address to said user and, moreover, retrieves, from a Quality-of-Service database Quality-of-Service parameters assigned to said user, executing the following steps:

15 a. said IP access device inserts, on the basis of said retrieved Quality-of-Service parameters, in said IP address assigned to the user, in a reserved IP-address space, a bit pattern which is representative for said the user's Quality-of-

20 Srvive parameters;

b. said IP routers detect at said reserved IP-address space said bit pattern and process the IP packet according to the Quality-of-Service parameters as indicated by said detected bit pattern.

25 ~~measures:~~ When a user logs in (for example upon establishing the PPP protocol), the user name/password combination is used to search for the subscription of the user in a database. By means of a specific bit pattern in a

30 fixed location reserved space in the IP address which is assigned to the user, it is subsequently designated which QoS-subscription the user has. The bit pattern in said reserved IP-address space can be assigned to a set of applications where the IP packets will be subsequently processed according the Quality-of-Service parameters.

The IP edge routers classify each IP packet after ~~inspection of detection~~ the bit pattern in said ~~fixed location reserved IP-address space in the IP address~~. For this, a fixed setting of the IP edge routers with a limited number of (selection) rules is sufficient, whereby only little processor capacity of the IP edge router and no continuous adjustment of configuration of the IP edge routers is required.

10 C. Description of the diagram

The mode of operation of the invention is further explained on the basis of two figures.

Fig. 1 shows how an IP address is assigned to a user. In this example, two subscriptions are distinguished: ordinary and special. Users with a special subscription receive an IP address with the format

"xxxxxxxx.xxxxxxxx.11111111.xxxxxxxx", i.e. the bit pattern "11111111" in positions 17-24 counted from the left, where "x" can be a 0 or a 1. Users with an ordinary subscription receive an IP address with another bit pattern in positions 17-24. In the customary notation for the Internet, this is an address "a.b.255.d", where $0 \leq a, b, d \leq 255$, as IP address for users with a special subscription, and "a.b.c.d", where $0 \leq a, b, d \leq 255$ and $c < 255$, as IP address for ordinary users.

25 Fig. 2 shows how an IP address of this example is used by the IP edge router to set the IP precedence bits, in this example to the value of 0 for ordinary users and 7 for special users.

30

D. References

1. Beyond Best Effort: Router Architectures for the Differential Services of Tomorrow's Internet", Kumar VP et al., IEEE Com. Mag. May 1998 pp 152-164

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internet-drafts/draft-ietf-diffserv-framework-00.txt~~
5. ~~"IP Commands", www.cisco.com/univercd/cc/td/doc/
product/software/ios111/mods/4mod/4rbook/4rip.htm~~
- 15 6. ~~"Committed Access Rate": www.cisco.com/univercd/cc/td/
doc/product/software/ios111/cc111/ear.htm~~

E. Claims

1. A method for the transmission, via an IP access device and various IP routers, of IP packets, originating from users with different Quality-of-Service contracts, ~~characterised in that~~ whereas, upon login of a user, ~~user parameters which are a representation of facilities registered in the service contract~~ said IP access device assigns an IP address to said user and, moreover, retrieves, from a Quality-of-Service database Quality-of-

10 Service parameters assigned to said user ~~of the user are retrieved from a database, characterised by the steps:~~

a. said IP access device inserts, on the basis of said retrieved Quality-of-Service parameters which, in an said IP address assigned to the user, in a fixed

15 location reserved IP-address space, a specific bit pattern is written which is representative for, in accordance with the said the user's Quality-of-Service parameters;

b. in which the said IP routers detect at said reserved IP-address space said bit pattern assign to each IP packet one

20 or more Quality of Service parameters based on the said bit pattern in a fixed location reserved IP-address space of the IP address, and subsequently process the IP packet according to said the Quality-of-Service parameters as indicated by said detected bit pattern.

25 2. An IP access device for the transmission of IP packets, originating from users with different Quality-of-Service contracts, ~~characterised by comprising means~~ (pProcl) for assigning an IP address to such a user and, moreover, for retrieving, from a Quality-of-Service

30 database, Quality-of-Service parameters assigned to said user, characterised by means and to writing for inserting, in a fixed location reserved IP-address space, a specific bit pattern, in accordance with which is representative for the user's Quality-of-Service user parameters which

~~are a representation of facilities registered in the service contract of a user.~~

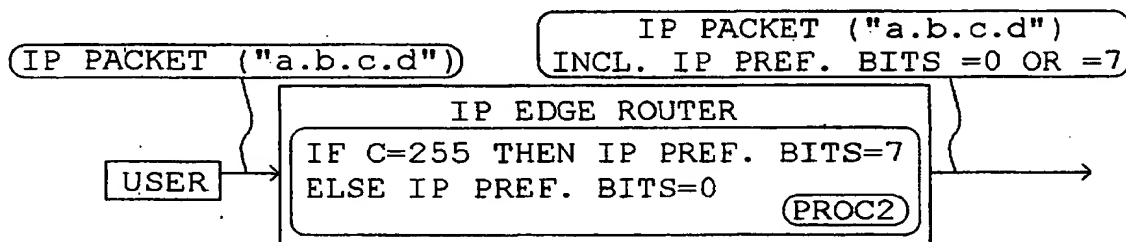
3. An IP router, for the routing, on the basis of IP addresses, ~~of IP packets, originating from users with~~
5 ~~different Quality-of-Service contracts, characterised by~~
~~means (pProc2) for assigning to each IP packet one or more~~
~~Quality of Service parameters in accordance with a bit~~
~~pattern, in a certain location within the IP address for~~
~~detecting a bit pattern in a reserved IP-address space of~~
10 ~~such IP packet, representative for the relevant user's~~
~~Quality-of-Service parameters, and for processing the IP~~
~~packet according to the Quality-of-Service parameters as~~
~~indicated by said detected bit pattern.~~



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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| (51) International Patent Classification ⁷ : H04L 29/12, 12/56 | A1 | (11) International Publication Number: WO 00/54477 (43) International Publication Date: 14 September 2000 (14.09.00) |
| <p>(21) International Application Number: PCT/EP00/01348</p> <p>(22) International Filing Date: 18 February 2000 (18.02.00)</p> <p>(30) Priority Data: 1011524 10 March 1999 (10.03.99) NL</p> <p>(71) Applicant (for all designated States except US): KONINKLIJKE KPN N.V. [NL/NL]; Stationsplein 7, NL-9726 AE Groningen (NL).</p> <p>(72) Inventor; and (75) Inventor/Applicant (for US only): BLOM, Marcus, Anthonius [NL/NL]; Van Leeuwenstraat 127, NL-2273 VS Voorburg (NL).</p> <p>(74) Agent: KONINKLIJKE KPN N.V.; P.O. Box 95321, NL-2509 CH The Hague (NL).</p> | <p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published With international search report.</p> | |

(54) Title: ENCODING USER SUBSCRIPTION IN IP ADDRESS



(57) Abstract

The invention is related to the technical implementation of an Internet user subscription with service differentiation. Service differentiation is required in order to give certain quality guarantees in an IP network which are necessary for demanding applications such as IP Telephony, IP Videophony or gaming. The current solution uses too much processor capacity of the IP edge router, and the continuous adjustment of the configuration of all IP edge routers in the network is necessary. The invention makes it possible, with a once-only configuration of IP edge routers, and with large numbers of users, to have IP traffic classified for differentiated handling by an IP edge router according to different subscriptions. This is achieved by assigning to users an IP address in which the subscription is encoded as a bit pattern in a fixed location.

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Title: Encoding user subscription in IP address.**A. Background of the invention**

The invention is related to a method for the
5 transmission, via an IP access point and various IP
routers, of IP packets, originating from users with
different service contracts.

It is known in the prior art that IP packets can be
handled by IP routers differentially on the basis of the
10 so-called IP precedence bits in the header of a packet, and
that the IP precedence bits can be set by an IP router at
the edge of the network ("IP edge router") on the basis of
various attributes of the IP packet ("classification"). It
is also known that, on the basis of the precedence bits,
15 the IP traffic of users with different service
subscriptions can be differentially handled ("per hop
behaviour"), i.e. according to the subscription-related
contract agreements. Said classification and "per hop
behaviour" are the building blocks with which, in an IP
20 network, future-determined quality guarantees can be given
which are required for demanding applications, such as IP
telephony, IP videophony or gaming.

The prior art has the following disadvantages: (1)
classification requires much processor capacity of the IP
25 edge router, whereby, with the current technology, it is
deployable for far too few users simultaneously and
therefore unsuitable for large-scale use, and (2)
continuous adjustment of the configuration of all IP edge
routers in the network is necessary, viz. upon every login
30 or logout of a user.

B. Summary of the invention

The invention seeks to obviate the said disadvantages.
To this end the invention provides the following measures:
35 when a user logs in (for example upon establishing the PPP

protocol), the user name/password combination is used to search for the subscription of the user in a database. By means of a specific bit pattern in a fixed location in the IP address which is assigned to the user, it is
5 subsequently designated which subscription the user has. IP edge routers classify each IP packet after inspection of the bit pattern in said fixed location in the IP address. For this, a fixed setting of the IP edge routers with a limited number of (selection) rules is sufficient, whereby
10 only little processor capacity of the IP edge router and no continuous adjustment of configuration of the IP edge routers is required.

C. Description of the diagram

15 The mode of operation of the invention is further explained on the basis of two figures.

Fig. 1 shows how an IP address is assigned to a user. In this example, two subscriptions are distinguished: ordinary and special. Users with a special subscription receive an
20 IP address with the format
"xxxxxxxx.xxxxxxxx.11111111.xxxxxxxx", i.e. the bit pattern "11111111" in positions 17-24 counted from the left, where "x" can be a 0 or a 1. Users with an ordinary subscription receive an IP address with another bit pattern in positions
25 17-24. In the customary notation for the Internet, this is an address "a.b.255.d", where $0 \leq a, b, d \leq 255$, as IP address for users with a special subscription, and "a.b.c.d", where $0 \leq a, b, d \leq 255$ and $c < 255$, as IP address for ordinary users. Fig. 2 shows how an IP address of this example is used by
30 the IP edge router to set the IP precedence bits, in this example to the value of 0 for ordinary users and 7 for special users.

D. References

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doc/product/software/ios111/cc111/car.htm](http://www.cisco.com/univercd/cc/td/-doc/product/software/ios111/cc111/car.htm)

E. Claims

1. A method for the transmission, via an IP access device and various IP routers, of IP packets, originating from users with different service contracts, characterised in
5 that, upon login of a user, user parameters which are a representation of facilities registered in the service contract of the user are retrieved from a database, on the basis of which, in an IP address assigned to the user, in a fixed location, a specific bit pattern is written, in
10 accordance with the said user parameters, in which the IP routers assign to each IP packet one or more Quality of Service parameters based on the said bit pattern in a fixed location of the IP address, and subsequently process the IP packet according to said Quality of Service parameters.
- 15 2. An IP access device for the transmission of IP packets, originating from users with different service contracts, characterised by means (proc1) for assigning an IP address to a user and to writing, in a fixed location, a specific bit pattern, in accordance with user parameters
20 which are a representation of facilities registered in the service contract of a user.
3. An IP router, for the routing, on the basis of IP addresses, of IP packets, originating from users with different service contracts, characterised by means
25 (proc2) for assigning to each IP packet one or more Quality of Service parameters in accordance with a bit pattern, in a certain location within the IP address.

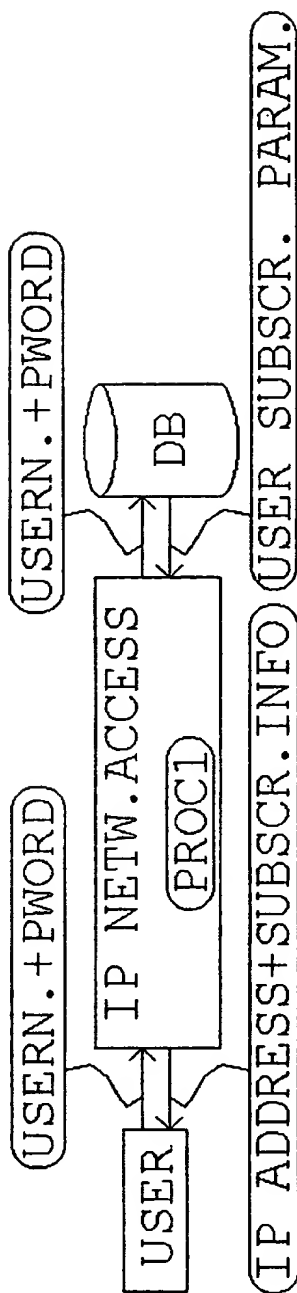


FIG. 1

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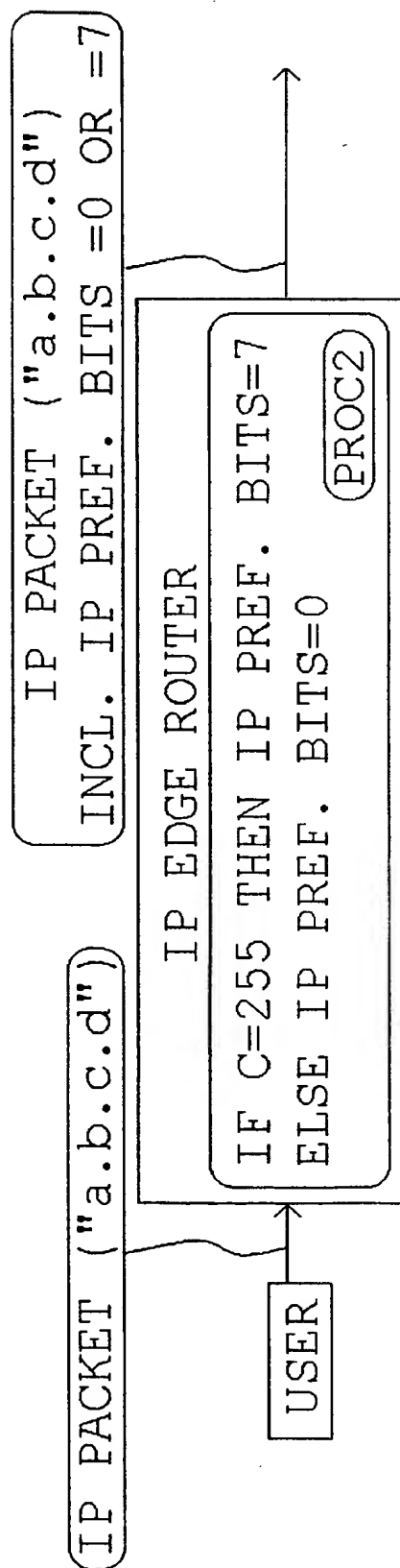


FIG. 2

INTERNATIONAL SEARCH REPORT

Inter national Application No

PCT/EP 00/01348

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/12 H04L12/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | HUI S -C ET AL: "A dynamic IP addressing system for Internet telephony applications" COMPUTER COMMUNICATIONS, NL, ELSEVIER SCIENCE PUBLISHERS BV, AMSTERDAM, vol. 21, no. 3, page 254-266 XP004115293 ISSN: 0140-3664 abstract page 254, left-hand column, line 1 -page 256, right-hand column, line 5 --- -/-- | 1-3 |

☒ Further documents are listed in the continuation of box C.

☐ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
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Date of the actual completion of the international search

8 June 2000

Date of mailing of the international search report

19/06/2000

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | <p>LEIZAOLA M S: "TUNING IP PERFORMANCE THE RIGHT TOOLS FOR THE TASK" DATA COMMUNICATIONS,US,MCGRAW HILL. NEW YORK, vol. 27, no. 7, page 129-130,132,134 XP000751339 ISSN: 0363-6399 page 129, line 1 -page 130, right-hand column, line 45</p> | 1-3 |
| A | <p>-----</p> <p>CISCO SYSTEMS, INC: "Cisco system's tag switching architecture overview" REQUEST FOR COMMENTS - RFC2105, 'Online! 1997, pages 1-11, XP002124989 Retrieved from the Internet: <URL:http://www.cis.ohio-state.edu/htbin/rfc/rfc2105.html> 'retrieved on 1999-12-08! page 1, line 1 -page 5, line 5 page 10, line 1-21</p> <p>-----</p> | 1-3 |